



Log # TXX-97246  
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Ref. # 10CFR50.73(a)(2)(iv)

**C. Lance Terry**  
Group Vice President

November 25, 1997

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

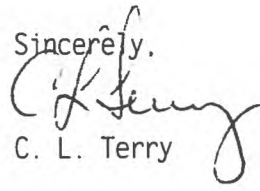
SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)-UNIT 1  
DOCKET NOS. 50-445  
MANUAL OR AUTOMATIC ACTUATION OF REACTOR PROTECTION SYSTEMS  
LICENSEE EVENT REPORT 445/97-009-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 97-009-00 for Comanche Peak Steam Electric Station Unit 1, "Slow Opening of the Unit 1 East Bus Supply Breaker Resulted in Turbine Trip and Subsequent Reactor Trip."

This communication contains a new commitment regarding CPSES Units 1 and 2 as identified in the Attachment.

Sincerely,

  
C. L. Terry

OB:ob  
Enclosure

cc: Mr. E. W. Merschoff, Region IV  
Mr. J. I. Tapia, Region IV  
Resident Inspectors

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S PDR



000004

Attachment

This communication contains the following new commitment:

<u>CDF Number</u>	<u>Commitment</u>
27118	A Task Team has been chartered to evaluate the root/contributing causes of the October 27, 1997 event, and to provide recommendations for corrective actions.

NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 4/30/98	
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)				ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC. 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.	
Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1				Docket Number (2) 05000445	Page (3) 01 OF 05
Title (4) SLOW OPENING OF THE UNIT 1 EAST BUS SUPPLY BREAKER RESULTED IN TURBINE TRIP AND SUBSEQUENT REACTOR TRIP					
Event Date ((5))		LER Number (6)		Report Date (7)	
Month	Day	Year	Year	Sequential Number	Revision Number
1	0	2	7	9	7
Other Facilities Involved (8)		Facility Name			
CPSES UNIT 2		Docket Numbers			
0 5 0 0 0 4 4 6		0 5 0 0 0			
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Operating Mode (9)		This report is submitted pursuant to the requirements of 10 CFR 5: (Check one or more) (11)			
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# **LICENSEE EVENT REPORT (LER) TEXT CONTINUATION**

Facility Name (1)  COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket  05000445	LER Number (6)						Page (3)		
		Year		Sequential Number		Revision Number		02	OF	05
		9	7	-	0	0	9			

Text (if more space is required, use additional copies of NRC Form 366A) (17)

## **I. DESCRIPTION OF THE REPORTABLE EVENT**

### **A. REPORTABLE EVENT CLASSIFICATION**

An event or condition that resulted in a manual or automatic actuation of any Engineered Safety Features (ESF) including the Reactor Protection System (RPS).

### **B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT**

On October 27, 1997, prior to the event, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operation, with reactor power at 100 percent.

### **C. STATUS OF STRUCTURE, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT**

There were no inoperable structures, systems or components that contributed to the event.

### **D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROPRIATE TIMES**

At approximately 9:00 a.m., on October 27, 1997, Unit 1 plant operators (Utility, Licensed) removed the east bus of the 345 KV switchyard from service for relay testing. This aligned the Unit 1 generator through a single output breaker to the west bus of the 345 KV switchyard. At approximately 10:44 a.m., a technician (Utility, Non-Licensed), initiated a test on the east bus lockout relay. The test verifies that on actuation of the lockout relay east bus supply breakers trip open. The Unit 1 generator east bus supply breaker was slow to open, approximately 67 cycles. The slow opening of the east bus supply breaker operated the backup timer associated with that breaker. The operation of the backup timer created a Unit 1 generator lock out signal. The generator lock out caused opening of the Unit 1 generator west bus supply breaker, a loss of load condition, and a Unit 1 turbine and reactor trip..

The east bus lockout relay test is a routine test that has been performed previously without incident. In reviewing the event, it was noted that disabling the breaker failure backup relay prior to the test would have prevented the slow opening from tripping the generator No. 1 Channel 1

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1)	Docket	LER Number (6)						Page (3)											
COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	05000445	Year	Sequential Number	Revision Number				9	7	-	0	0	9	-	0	0	03	OF	05

Text (if more space is required, use additional copies of NRC Form 366A) (17)

lockout relay. The normal work practice is to disable backup relay protection for testing when the bus is removed from service. Work instructions being used were not sufficient to ensure that the backup relaying was defeated prior to performing the test.

Following the trip at approximately 10:44 a.m. on October 27, 1997, Control Room personnel (utility, licensed) responded in accordance with plant procedures. Plant systems responded as expected, and the plant was stabilized in Mode 3, Hot Standby.

An event or condition that results in an automatic actuation of any ESF, including the RPS, is reportable within 4 hours pursuant to the requirements of 10CFR50.72(b)(2)(ii). At 2:05 p.m. on October 27, 1997, the Nuclear Regulatory Commission Operations Center was notified of the event the via Emergency Notification System.

## E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

The reactor trip was annunciated by numerous alarms in the Control Room.

## II. COMPONENT OR SYSTEM FAILURES

### A. FAILURE MODE, MECHANISM, AND EFFECT OF EACH FAILED COMPONENT

The Unit 1 generator east bus supply was slow to open and caused the operation of its breaker failure backup timer. The breaker opening took 67 cycles while the breaker failure backup timer is set for 7 cycles. The operation of the breaker failure backup timer activated the Unit 1 generator lockout relay tripping the west bus supply breaker, the turbine and the reactor.

### B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

The Unit 1 generator east bus supply breaker was slow to open, approximately 67 cycles. The slow opening of the east bus supply breaker operated the backup timer associated with that breaker. The operation of the backup timer created a Unit 1 generator lock out signal. The generator lock out caused opening of the Unit 1 generator west bus supply breaker, a loss of load condition, and a Unit 1 turbine and reactor trip.



# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1)	Docket	LER Number (6)						Page (3)					
COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	05000445	Year	Sequential Number	Revision Number									
		9	7	.	0	0	9	.	0	0	04	OF	05

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## C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable - No failures of components with multiple functions have been identified.

## III. ANALYSIS OF THE EVENT

### A. SAFETY SYSTEM RESPONSES THAT OCCURRED

Both Motor Driven Auxiliary Feedwater Pumps were manually started at the operators discretion (prior to reaching the auto start setpoint) due to the loss of main feedwater pumps.

### B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

No safety system trains were inoperable during this transient.

### C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

A loss of external electrical loads leads to a reduction in the capability of the secondary system to remove heat generated in the reactor core. This event is presented in section 15.2.2 of the CPSES Final Safety Analysis Report (FSAR) and is bounded by the analysis of turbine trip event and loss of normal feedwater event presented in the FSAR Sections 15.2.3 and 15.2.7 respectively. In the analysis of these events, conservative assumptions were used to minimize the energy removal capability of the Auxiliary Feedwater system. Since there was no loss of preferred offsite power experienced during the October 27, 1997 event, the conservative assumption in FSAR section 15.2.2 were deemed to bound the event.

Based on the above, it was concluded that the event had no impact on the health and safety of the public.

# **LICENSEE EVENT REPORT (LER) TEXT CONTINUATION**

Facility Name (1)	Docket	LER Number (6)						Page (3)					
COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	05000445	Year			Sequential Number			Revision Number					
		9	7	.	0	0	9	.	0	0			
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**IV. CAUSE OF THE EVENT**

The cause of the event was deemed to be slow opening of the Unit 1 generator east bus supply breaker. Additionally, work instructions communicated to the technician was insufficient in detail to defeat the backup protective relay actuation during the performance of the test.

**V. CORRECTIVE ACTIONS**

The east bus supply breaker has been inspected and exercised. The affected equipment was tested and declared functional prior to startup of CPSES Unit 1.

Additionally, TU Electric management has initiated additional corrective actions. A Task Team has been chartered to evaluate the root/contributing causes of the October 27, 1997 event, and to provide recommendations for corrective actions.

**VI. PREVIOUS SIMILAR EVENTS**

There has been a previous event which involved the breaker failure backup timer in the switchyard breaker. However, the causes of that event was sufficiently different, such that the corrective actions for the previous events would not have prevented the October 27, 1997 event.

**VII. ADDITIONAL INFORMATION**

All times provided are approximated and are Central Standard Time.

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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TERRY, C.L.      Texas Utilities Electric Co. (TU Electric)  
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